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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,834	02/16/2006	Jonathan Michael Blackburn	27353-513-US1	8870
35437 7590 05/25/2007 MINTZ LEVIN COHN FERRIS GLOVSKY & POPEO 666 THIRD AVENUE NEW YORK, NY 10017			EXAMINER TSAY, MARSHA M	
			ART UNIT 1656	PAPER NUMBER
			MAIL DATE 05/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,834

Applicant(s)

BLACKBURN ET AL.

Examiner

Marsha M. Tsay

Art Unit

1656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 40-77 is/are pending in the application.
- 4a) Of the above claim(s) 45-70 and 72-77 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 40-44 and 71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Art Unit: 1656

Applicant's election of Group I, claims 40-44, 71, in the reply filed on April 5, 2007 is acknowledged. The election was done without reverse. Since Applicants did not elect a species from the genus of antibiotics from the bleomycin family for examination, solely for the purpose of expediting prosecution, Examiner has provisionally selected bleomycin for examination, since it is the first species listed in the group (specification p. 8).

Claims 1-39 are canceled. Claims 45-70, 72-77 have been withdrawn from further consideration by the Examiner because they are drawn to non-elected inventions. Claims 40-44 and 71 are currently under examination.

Priority: The benefit date is October 25, 2002, for the purpose of prior art.

Claim Objections

Claim 43 is objected to because of the following informalities: in claim 43, the term "is" should be inserted between "protein" and "an". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 40-44, 71 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

Art Unit: 1656

art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 40-44, 71 are rejected under 112 first paragraph because it refers to a protein only by function.

The court of Appeals for the Federal Circuit has recently held that such a general definition does not meet the requirements of 35 U.S.C. 112, first paragraph. "A written description of an invention involving chemical genus, like a description of a chemical species, requires a precise definition, such as be structure, formula {or} chemical name, of the claimed subject matter sufficient to distinguish it from other materials." *University of California v. Eli Lilly and Co.*, 1997 U.S. App. LEXIS 18221, at *23, quoting *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). The court held that "in claims involving chemical materials, generic formulae usually indicate with specificity what generic claims encompass. One skilled in the art can distinguish such a formula fro others and can identify many of the species that the claims encompass. Accordingly, such a formula is normally an adequate description of the claimed genus. In claims to genetic material, however, a generic statement such as "vertebrate insulin cDNA" or "mammalian insulin cDNA," without more, is not an adequate written description of the genus because it does not distinguish it from others. One skilled in the art therefore cannot, as one can do with a fully described genus visualize the identity of the members of the genus". Here, Applicant is claiming a product by what it does, i.e. function, rather than what it is (in terms of structure).

Art Unit: 1656

Claim 71 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an amine reactive surface, does not reasonably provide enablement for any surface from any source and/or origin via bleomycin antibodies. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make/use the invention commensurate in scope with these claims.

The scope of the instant claims is not commensurate with the enablement of the instant disclosure, because practice of the claimed invention would require undue experimentation by an artisan of ordinary skill in the art to ascertain which surfaces can be derivatized with which functional groups in order to couple a bleomycin antibiotic to the surface. Thus there could be many types of surfaces from many different sources and/or origins which can and/or cannot be coupled with bleomycin antibiotics. Thus for the instant claimed invention, it would require an undue burden of experimentation for a skilled artisan to determine exactly which surfaces were active.

The instant method is drawn to a method of purifying a ble fusion protein from a crude extract comprising the step of immobilizing it on a surface via an antibiotic from the bleomycin family and optionally releasing it therefrom. As currently written, the claim encompasses any surface from any source and/or origin. While the specification appears to be enabled for an amine reactive surface (spec. p. 8), it does not reasonably provide enablement for all types of surfaces.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1656

Claims 40-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 40, 44 recite the terms "Ble", "Sh ble", Tn5 ble, Sa ble, respectively. The terms should be defined in full. Further, it is unclear what the difference between the capitalized "Ble" recited in claim 40 and the uncapitalized "ble" recited in claim 44 is since they both appear to refer to a fusion protein.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 40-41, 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Gautier et al. (1996 Experimental Cell Research 224: 291-301). Gautier et al. teach fusion genes carrying *Drosophila* alcohol dehydrogenase (Dro-ADH) fused to Sh ble were expressed in mammalian cells (p. 292, p. 295). Gautier et al. teach Dro-ADH was fused to the N- terminus or C-terminus of Sh ble, as well as a tandem gene carrying Sh ble gene fused with ADH sequences localized at both ends, and their expression (Fig. 3, p. 296 col. 2; claims 40-41, 44).

Claims 40-41, 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Bennett et al. (1998 BioTechniques 24(30): 478-482; previously cited). Bennett et al. teach a ble fusion

protein comprising green fluorescent protein (GFP) and the ZeocinTM-resistance gene Sh ble that can be used for visual screening and selection of transfected mammalian cells (p. 478; claims 40-41, 44).

Claims 40-41, 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Baron et al. (1992 Gene 114(2): 239-243). Baron et al. teach the Sh ble gene, conferring resistance to phleomycin, was fused in frame to both the 3' and 5' ends of *E. coli* lacZ gene in order to generate a bifunctional β -galactosidase::phleomycin-resistance fusion protein as a potential marker for eukaryotic cells (p. 239-240; claims 40-41, 44).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackburn et al. (WO 0227327) in view of Bennett et al. (1998 BioTechniques 24(30): 478-482; previously cited). Blackburn et al. teach methods of producing proteins in which one or more domains are full length and correctly folded and which are each tagged at either the N- or C-terminus with one or more marker moieties (p. 1 lines 1-5). The methodology allows proteins to be "tagged" with a common marker, wherein the "tag" can be used to impart commonality and specificity to downstream immobilization and purification procedures (p. 3 lines 20-28). The marker moieties

Art Unit: 1656

used to “tag” the proteins can be a peptide sequence, i.e. hexa-histidine tag, an antibody epitope, and/or a protein domain (p. 5 lines 14-18). On pages 15-17, Blackburn et al. teach the expression of the tagged protein and its uses upon purification.

The teachings of Bennett et al. are outlined above.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to create a “tagged” Ble fusion protein by substituting a hexa-histidine tag disclosed by Blackburn et al. for the GFP reporter protein disclosed by Bennett et al. and purify the protein by Zeocin selection (claims 42-43, 71). One of ordinary skill would recognize that an affinity tag, i.e. hexa-histidine tag, and GFP are both marker moieties that can be used to generate fusion proteins for purification and/or visualization of selected proteins.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marsha M. Tsay whose telephone number is 571-272-2938. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Dr. Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 1656

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

May 22, 2007

M. Monshi
MARYAM MONSHIPOURI, PH.D.
PRIMARY EXAMINER